Forum

On compilability and composite design

Dear Editor:
With reference to G. J. Myers' paper in the *IBM Systems Journal* (Vol. 15, No. 3) entitled "Composite design facilities of six programming languages," there is much with which I can agree.

I cannot, however, agree with the following conclusion by Myers: "Composite design does not lend itself well to the design of RPG and ALGOL programs: both lack the concept of a module . . . " His conclusion is based upon the statement that in order to be suited to composite design a module should have the potential of being independently compiled.

With respect to ALGOL, I will simply state that both ALGOL F and DELFT ALGOL 60 have the ability of making separate compilations. Both languages require the end user to define the procedure type as well as the formal parameter list. The ALGOL F run time system generates a test to check whether this declaration is valid. The DELFT ALGOL 60 compiler makes the test at compile time.

Since the IBM ALGOL provides the module concept, it should also be well suited to composite design.

In my opinion, the ability to provide for composite design should be compared with a request for safe programming. Both PL/I and ALGOL (F, DELFT, or other ALGOL 60 compilers) tolerate the use of global variables within an internal procedure body. Although this may be used, the procedure designer has to rely upon the end user. ALGOL allows the procedure designer to decide whether the argument transmission should be by value or by name, thus keeping full control and responsibility. But I realize the ALGOL procedure designer has to rely upon the end user when playing with transmission by name, which may result in erroneous programs. The argument transmission should therefore be restricted to value/result as done by Algol W.

I would also like to point out that some of the features to be desired in future languages are available in another ALGOL-like language, Simula 67, information about which I will forward to interested persons.

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